Liisa Simola

* 8.6.1938 † 11.2.2023

Professor Emerita of Botany Liisa Kaarina Simola passed away on 11 February 2023 in Helsinki at the age of 84. She was born in Helsinki on 8 June 1938.

Liisa Simola passed her matriculation examination at the Girls' Normal Lyceum in Helsinki in 1957. Already in her school years, she was interested in a career in research. She became familiar with a research and academic atmosphere as a child, because her father Paavo Eevertti Simola and grandfather Evert Fritjof Simola were both professors, while her mother Kerttu Marjatta Simola was a dentist. Liisa Simola went on to study not only botany, but also geology, palontology, genetics and biochemistry at the University of Helsinki, where she earned her Master's degree in 1962 and her Licentiate degree in Philosophy in 1963.

Simola's career in research progressed rapidly and the main focus was on plants. From 1962 to 1968, she worked as an assistant in Botany at the University of Helsinki and from 1968 to 1970 as a research assistant and junior researcher of the Academy of Finland. Simola's doctoral thesis, *Comparative studies on the amino acid pools of three Lathyrus species*, was completed in 1968. In her thesis, she examined e.g. the chemotaxonomy of three *Lathyrus* species. Her main interest was exploring non-protein amino acids that, when present in human food or animal feed, can cause an incurable neurological disease known as lathyrism. After earning her doctorate, Simola worked as Associate Professor of Plant Physiology and Anatomy from 1971 to 1974, and in 1974 she was appointed Professor of Botany at the University of Helsinki. Simola held this professorship until her retirement at the end of 2001.

Already while working as an assistant at the Department of Botany, Simola saw a need to develop teaching and research in plant physiology. The acquisition of new research tools and equipment enabled the introduction of new research methods and the reform of teaching, teaching materials and courses in plant physiology and anatomy.

In 1968, Simola visited the laboratory of Professor Street at the University of Leicester in England to learn about plant cell culture techniques. She was one of the first researchers in Finland to use plant tissue cultures in her research. Through the courses offered by the Department of Botany, plant cell culture techniques spread to other research institutes and universities.

In addition to numerous plant propagation applications, plant cell culture techniques can be used in plant breeding and the production of secondary metabolites. In addition, tissue cultures can be used to study the phenomena that occur in plant cells and whole plants. In her article published in *Luonnon Tutkija* in 1986, Simola provided a practical account of the use of tissue culture techniques in basic research in developmental physiology and applied fields, perhaps dispelling some of the prejudice against them.

Simola utilized aseptic tissue culture techniques in many ways in her own research. One of the major themes of her research was the development of a Norway spruce tissue culture line that produces lignin. This line is still used in research. Especially the connection between the lignin biosynthesis and peroxidases was a topic of interest. In addition to spruce, other major lines of research included the genus *Atropa* and sphagnum moss (*Sphagnum*), although there were also many other areas of research, from algae and lichens to forest trees, and several topics, from the sources of nitrogen and polyamines to fatty acids and alkaloids, environmental toxins and somatic embryogenesis.

The fine structure of cells was a key area in which Simola could combine physiological research with the electron microscopical study of plant structures, looking for answers to questions of what was happening in a plant and where.

The results of Simola's broad research have been published in several major international journals. Her love for research did not end with her retirement, but she continued to work in cooperation with the scientific community and her former collaborators and students, as shown by her extensive list of international publications also after 2001.

Liisa Simola also wrote actively for Finnish scientific publications, such as *Luonnon Tutkija* and the series of various research institutes and professions. She covered a variety of topics, including somatic embryogenesis in plants, the micropropagation of forest trees and the physiology of winter dormancy in plants. She was a keen observer, as is well illustrated by her small article in a 2001 issue of the *Vuosaari* magazine about the flowering of the sea pea on the shores of Kallahti. She also produced a summary of the rations that were issued to soldiers on the front lines in the latest wars to try to prevent e.g. scurvy. This study was inspired by the work of Liisa's father, Professor of Medical Chemistry Paavo Simola, who was a nutritional advisor to the Finnish Defence Forces during the Continuation War. During the war, the University of Helsinki Department of Medical Chemistry, led by Simola, conducted extensive studies e.g. on the nutritional value of different foods, emergency nutrition, feeding domestic animals and storing foods.

Liisa Simola published several reviews of scientific books written by international authors. In the 1970s, she was also a member of a large group of writers, made up of researchers and teachers, who aimed to revise school biology textbooks. Produced by the group, the biology textbook for upper secondary school was quite progressive in terms of content, covering topics such as protein synthesis. The Scandinavian Plant Physiology Society (SPPS) awarded the SPPS Popularisation Prize to Simola in 1988.

Simola was a member of the Finnish Academy of Science and Letters since 1987.

She served on the boards of several Finnish and international learned societies, including as vice-chair of the Histochemical Society 1974–1976, and vice-chair and chair of the Biological Society of Finland Vanamo 1976–1978, after which she was invited to become an honorary member of Vanamo. Simola represented Finland on the board of the Scandinavian Plant Physiology Society (SPPS) 1979–1985, and was a member of the editorial board of the society's journal, *Physiologia Plantarum*, 1970–1979 and a member of the journal committee 1983–1995. Simola was also the Finnish correspondent of the International Association for Plant Tissue and Cell Culture.

In addition to botany, Liisa Simola was interested in the arts and wrote e.g. an article on flowers in Shakespeare's plays for the *Tiede 2000* magazine. She drew strength from music and frequently attended concerts. In her old age, she learned to play the kantele. Scouting and parish activities, as well as sponsoring the education of girls in developing countries, were close to her heart. Liisa had a phenomenal memory. She read a lot of books, especially biographies, and would sometimes entertain her circle of friends by talking in length about funny anecdotes from the lives of various cultural figures. After retiring, Liisa acquired a summer house in Vuohiniemi, Hattula, and enjoyed entertaining guests as a generous hostess. She took great pleasure in the natural beauty of the place, the flowers and the birdsong. The yearly trip to Vuohiniemi to plant summer flowers was her cherished tradition to welcome summer.

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